

REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1, 4-8 and 10-11 are currently pending in this application. Claim 9 has been cancelled. No new matter has been added by way of the present amendment. For instance, the amendments to claims 1 and 7 find support at, for example, page 7, line 26 to page 10, line 13 of the Specification, as well as previously presented claim 9, now cancelled. Accordingly, no new matter has been added.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

Issues Under 35 U.S.C. 102/103

Claims 7 and 8 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horiuchi (U.S. 5,800,230) (hereinafter US '230). Applicants respectfully traverse.

The Examiner asserts that US '230 teaches a bulky nonwoven fabric comprising heat fusible conjugate fibers comprising two polymers having different melting points. The Examiner further notes that US '230 teaches a relationship between strength and the specific volume. The Examiner argues that "[w]hen the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant..." Moreover, the Examiner has taken the position that "[b]ulking is equated with increasing in dimension and therefore meets Applicants

claim limitation of a negative heat shrinkage.”

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation. For anticipation under 35 U.S.C. §102, the reference must teach each and every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present". *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *Id.*

Moreover, Applicants submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be a reason why one of ordinary skill in the art would modify the reference or combine reference teachings to obtain the invention. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the "teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* Rejections on obviousness grounds cannot be sustained by mere

conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

The bulky nonwoven fabric of claim 7 is prepared by using the heat fusible conjugate fibers recited in claim 1 as a raw material (note that claim 7 has been amended to incorporate this limitation). The heat fusible conjugate fibers are produced by high-speed melt spinning, followed by a heat treatment or a crimp treatment, without drawing. In contrast, the raw material used for preparing the filament nonwoven fabric of US '230 is produced by high-speed melt spinning, **but is not subjected to a heat treatment or crimp treatment after the spinning** (emphasis added).

Applicants respectfully submit that the Examiner appears to misinterpret the teachings of US '230. The raw material fiber disclosed in US '230 is not subjected to a heat treatment until the nonwoven fabric is actually prepared. In contrast, the fibers in the bulky nonwoven fabric of the present invention are subjected to a heat treatment or crimp treatment after the fibers are prepared by melt-spinning, and are further subjected to a second heat treatment when the nonwoven fabric is actually being prepared. US '230 does not disclose subjecting the fibers to a heat treatment when the fibers are prepared, but rather only after the fibers are already prepared and the nonwoven fabric is being manufactured.

In the present invention, negative heat shrinkage is obtained by high-speed melt spinning, and after the spinning, a heat treatment or crimp treatment but no drawing. The heat fusible conjugate fiber of the present invention increases in length by heating (for a second time) in the course of the production of the nonwoven fabric. As a result of these operations, the nonwoven fabric becomes "bulky." In contrast, because US '230 only performs a step of heating when the

actual nonwoven fabric is being manufactured, the fibers crimp and entangle, and, as a result, the nonwoven fabric becomes thick.

One of the reasons the nonwoven fabric of US '230 becomes thick is that fiber shrinkage occurs along the horizontal direction. As a result, the density of the nonwoven fabric becomes larger than it was before the heat treatment of the nonwoven fabric. Applicants submit that the use of the term "bulky" in US '230 does not imply that the specific volume is small, as presently claimed, but rather than the fabric becomes thick.

Applicants further submit that the specific volume of the claimed nonwoven fabric is smaller than that of the nonwoven fabric disclosed in US '230. The raw material fibers of the nonwoven fabric disclosed in US '230 are continuous filaments. As is known in the art, it is technically difficult to improve bulkiness of a nonwoven fabric made of continuous filaments, because theoretically, the continuous filament does not have a terminal, and so it only possesses limited mobility. In contrast, the raw material fiber used in the present invention is a staple fiber whose fiber length is 30-70mm (see claims 1 and 7; see also page 10, line 6 of the Specification). Since the staple fiber has terminals, fiber mobility is high compared with a continuous filament. As a result, the bulkiness of the web increases when the length of the fiber increases (i.e., upon application of heat).

Evidently, US '230 fails to teach or suggest a nonwoven fabric as presently claimed. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Issues under 35 U.S.C. 103(a)

Claims 1, 4-6 and 9-11 stand rejected under 35 U.S.C. 103(a) as being obvious over US '230 in view of J. Karger-Kocsis, "*Polypropylene An A-Z reference*" (hereinafter Karger). Applicants respectfully traverse.

The Examiner asserts that US '230 teaches a process of making a conjugate filament including the steps of spinning the conjugated filaments by a spun bond method, blowing the webs by a high-speed flow against a scavenging device and removing the blown high-speed flow from the device, carrying out a preliminary bulkiness treatment and adding crimps and bulkiness. The Examiner further argues that US '230 "does not teach the filaments are drawn."

The Examiner acknowledges that US '230 does not teach the property of heat shrinkage. However, the Examiner notes that US '230 teaches "a filament with the property of bulking when subjected to heat treatments...Bulking is equated with increasing in dimension and therefore meets Applicants claim limitation of a negative heat shrinkage."

The Examiner further acknowledges that US '230 does not teach the claimed orientation index. The Examiner, however, relies on the teachings of Karger to establish that optimizing the spinning take-up velocity (which would have been obvious to one skilled in the art) would also change the orientation index of the resultant fiber.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. As discussed above, US '230 fails to teach heat fusible conjugate fibers produced by high-speed melt spinning, followed by a heat treatment or a crimp treatment, without drawing. Rather, the raw material used for preparing the filament nonwoven fabric of US '230 is produced by high-speed melt spinning, **but is not subjected to a heat treatment or**

crimp treatment after the spinning (emphasis added). Moreover, as discussed above, the nonwoven fabrics of US '230 and the present invention are different in terms of raw materials and degree of bulkiness.

Additionally, contrary to the Examiner's assertion, the method of US '230 includes a step of drawing the fibers after the step of spinning. For instance, at col. 5, lines 23-35, US '230 explicitly discloses:

"The nonwoven fabric of this invention can be manufactured by the conjugating spun bond method mentioned below. In this method, various polymers are melted and forced out of a plurality of extruders, and conjugated fibers in which multicomponents are conjugated are spun from a conjugating spinning pack. The spun fibers are drawn by a high-speed flux drawing type device such as an air sucker, and the fibers along with the flux are scavenged by a web scavenging device such as a net conveyer. The web is then treated with heat, thus thermally fusing and adhering the fibers. The air flux which is blown with the web is sucked and removed from the bottom section of the scavenging device". (emphasis added)

Clearly, US '230 fails to teach or suggest a heat fusible conjugate fiber as presently claimed. Karger fails to cure the deficiencies of US '230.

Karger discloses orientation indexes in general. However, this reference does not teach or suggest obtaining a fiber that exhibits negative heat shrinkage by controlling the orientation index of each polymer in a conjugate fiber.

Clearly, the prior art of record fails to teach or suggest each and every limitation of the

present invention. For this reason alone, this rejection is improper and should be withdrawn. Moreover, Applicants submit that one skilled in the art would not have been motivated to combine and modify the references as proposed by the Examiner, as this would render the fibers and fabric of US '230 unsatisfactory for their intended use.

Specifically, as noted above, Karger does not teach or suggest obtaining a fiber that exhibits negative heat shrinkage by controlling the orientation index of each polymer in a conjugate fiber. As such, suitable process conditions for modification cannot be determined from the teachings of Karger.

Evidently, the present invention is not rendered obvious by the prior art of record. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

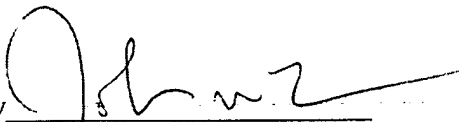
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Vanessa Perez-Ramos (Reg. No. 61,158) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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